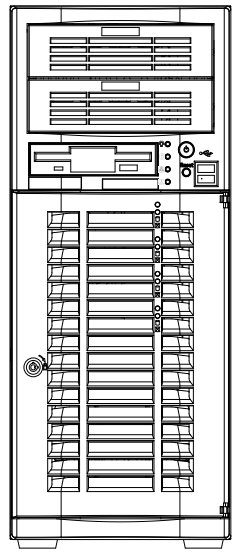
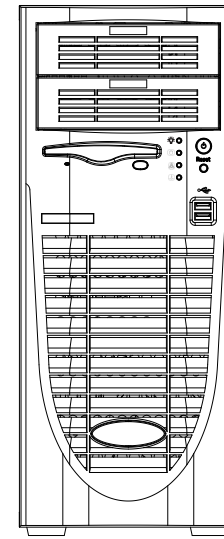
SUPERO®

SC733 CHASSIS SERIES





SC733TQ-665B

SC733T-645(B)

SC733E-465B

SC733T-465B

SC733T-450(B)

SC733T-350(B)

SC733TQ-645B

SC733i-645(B)

SC733TQ-465B

SC733i-465(B)

SC733i-450(B)

SC733i-300(B)

USER'S MANUAL

1.0d

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Preface

About This Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SC733 chassis. Installation and maintenance should be performed by experienced technicians only.

Supermicro's SC733 chassis features a unique and highly-optimized design for dual-core Xeon platforms. The chassis is equipped with a 300W, 350W, 450W, 465W, 645W, or 665W high-efficiency power supply for superb power savings.

This document lists compatible parts available when this document was published. Always refer to the our Web site for updates on supported parts and configurations.

Manual Organization

Chapter 1: Introduction

The first chapter provides a checklist of the main components included with this chassis and describes the main features of the SC733 chassis. This chapter also includes contact information.

Chapter 2: System Safety

This chapter lists warnings, precautions, and system safety. It recommended that you thoroughly familiarize yourself installing and servicing this chassis safety precautions.

Chapter 3: System Interface

Refer to this chapter for details on the system interface, which includes the functions and information provided by the control panel on the chassis as well as other LEDs located throughout the system.

Chapter 4: Chassis Setup and Maintenance

Follow the procedures given in this chapter when installing, removing, or reconfiguring your chassis.

Appendices

This section lists compatible cables, power supply specifications, and compatible backplanes. Not all compatible backplanes are listed. Refer to our Web site for the latest compatible backplane information.

Appendix A: Chassis Cables

Appendix B: Power Supply Specifications

Appendix C: SAS-733TQ Backplane Specifications

Appendix D: SATA-733 Backplane Specifications

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Appendix D SATA-733 Backplane Specifications

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Chapter 1

Introduction

1-1 Overview

Supermicro's SC733 chassis features a unique and highly-optimized design. The chassis is equipped with high-efficiency power supply. High-performance fans provide ample optimized cooling for FB-DIMM memory modules and four hot-swappable drive bays offer maximum storage capacity.

1-2 Shipping List

Please visit the following link for the latest shiping lists and part numbers for your particular chassis model http://www.supermicro.com/

SC733 Chassis				
Model	**CPU**	**HDD**	**I/O Slots**	**Power Supply**
SC733TQ-665B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	665W Super Quiet
SC733TQ-645 / SC733TQ-645B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	645W
SC733T-645 / SC733T-645B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	645W
SC733i-645 / SC733i-645B	UP/DP Xeon/Opteron	4x Fixed	7x FF	645W
SC733TQ-465B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	465W Low-Noise
SC733T-465B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	465W Low-Noise
SC733i-465B	UP/DP Xeon/Opteron	4x Fixed	7x FF	465W Low-Noise
SC733E-465B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	465W Low-Noise
SC733T-450 / SC733T-450B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	450W
SC733i-450 / SC733i-450B	UP/DP Xeon/Opteron	4x Fixed	7x FF	450W

SC733 Chassis				
SC733T-350 / SC733T-350B	UP/DP Xeon/Opteron	4x SAS/SATA	7x FF	350W
SC733i-300 / SC733i-300B	UP/DP Xeon/Opteron	4x Fixed	7x FF	350W

1-3 Where to get Replacement Components

Though not frequently, you may need replacement parts for your system. To ensure the highest level of professional service and technical support, we strongly recommend purchasing exclusively from our Supermicro Authorized Distributors / System Integrators / Resellers. A list of Supermicro Authorized Distributors / System Integrators /Reseller can be found at: http://www.supermicro.com. Click the Where to Buy link.

1-4 Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)

Asia-Pacific

Address:	Super Micro Computer, Inc.
	4F, No. 232-1, Liancheng Rd.
	Chung-Ho 235, Taipei County
	Taiwan, R.O.C.
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3991
Web Site:	www.supermicro.com.tw
Technical Support:	
Email:	support@supermicro.com.tw
Tel:	886-2-8226-1900

1-5 Returning Merchandise for Service

A receipt or copy of your invoice marked with the date of purchase is required before any warranty service will be rendered. You can obtain service by calling your vendor for a Returned Merchandise Authorization (RMA) number. When returning to the manufacturer, the RMA number should be prominently displayed on the outside of the shipping carton, and mailed prepaid or hand-carried. Shipping and handling charges will be applied for all orders that must be mailed when service is complete.

For faster service, RMA authorizations may be requested online (http://www.supermicro.com/support/rma/).

Whenever possible, repack the chassis in the original Supermicro carton, using the original packaging material. If these are no longer available, be sure to pack the chassis securely, using packaging material to surround the chassis so that it does not shift within the carton and become damaged during shipping.

This warranty only covers normal consumer use and does not cover damages incurred in shipping or from failure due to the alteration, misuse, abuse or improper maintenance of products.

During the warranty period, contact your distributor first for any product problems.

Chapter 2

System Safety

2-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following the steps in order given should enable you to have your chassis setup and operational within a minimal amount of time. This quick set up assumes that you are an experienced technician, famailiar with common concepts and terminology.

2-2 Warnings and Precautions

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage, file a damage claim with carrier who delivered your system.

Decide on a suitable location for the rack unit that will hold that chassis. It should be situated in a clean, dust-free area that is well venilated. Avoid areas where heat, electrical noise and eletromagnetic fields are generated.

You will also need it placed near at least one grounded power outlet. When configured, the SC733 chassis includes one power supply.

2-3 Electrical Safety Precautions

Basic electrical safety precautions should be followed to protect yourself from harm and the SC733 from damage:

- Be aware of the locations of the power on/off switch on the chassis as well as the room's emergency power-off switch, disconnection switch or electrical outlet. If an electrical accident occurs, you can then quickly remove power from the system.

- Do not work alone when working with high-voltage components.

- Power should always be disconnected from the system when removing or installing main system components, such as the serverboard, memory modules and the DVD-ROM (not necessary for hot swappable drives). When disconnecting power, you should first power down the system with the operating

system and then unplug the power cords from all the power supply modules in the system.

- When working around exposed electrical circuits, another person who is familiar with the power-off controls should be nearby to switch off the power, if necessary.

- Use only one hand when working with powered-on electrical equipment. This is to avoid making a complete circuit, which will cause electrical shock. Use extreme caution when using metal tools, which can easily damage any electrical components or circuit boards they come into contact with.

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- The power supply power cord must include a grounding plug and must be plugged into grounded electrical outlets.

- Serverboard battery: CAUTION - There is a danger of explosion if the onboard battery is installed upside down, which will reverse its polarities This battery must be replaced only with the same or an equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

- Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

- DVD-ROM laser: CAUTION - this server may have come equipped with a DVD-ROM drive. To prevent direct exposure to the laser beam and hazardous radiation exposure, do not open the enclosure or use the unit in any unconventional way.

2-4 General Safety Precautions

- Keep the area around the chassis clean and free of clutter.

- Place the chassis top cover and any system components that have been removed away from the system or on a table so that they won't accidentally be stepped on.

- While working on the system, do not wear loose clothing such as neckties and unbuttoned shirt sleeves, which can come into contact with electrical circuits or be pulled into a cooling fan.

- Remove any jewelry or metal objects from your body, which are excellent metal conductors that can create short circuits and harm you if they come into contact with printed circuit boards or areas where power is present.

- After accessing the inside of the system, close the system back up and secure it to the rack unit with the retention screws after ensuring that all connections have been made.

2-5 System Safety

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- Do not use mats designed to decrease electrostatic discharge as protection from electrical shock. Instead, use rubber mats that have been specifically designed as electrical insulators.

- Use a grounded wrist strap designed to prevent static discharge.

- Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.

- When handling chips or modules, avoid touching their pins.

- Put the serverboard and peripherals back into their antistatic bags when not in use.

- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the serverboard.

Chapter 3

System Interface

3-1 Overview

There are several LEDs on the control panel as well as others on the drive carriers to keep you constantly informed of the overall status of the system as well as the activity and health of specific components. Most SC733 models are two buttons on the chassis control panel: a reset button and a power on/off switch. This chapter explains the meanings of all LED indicators and the appropriate response you may need to take.

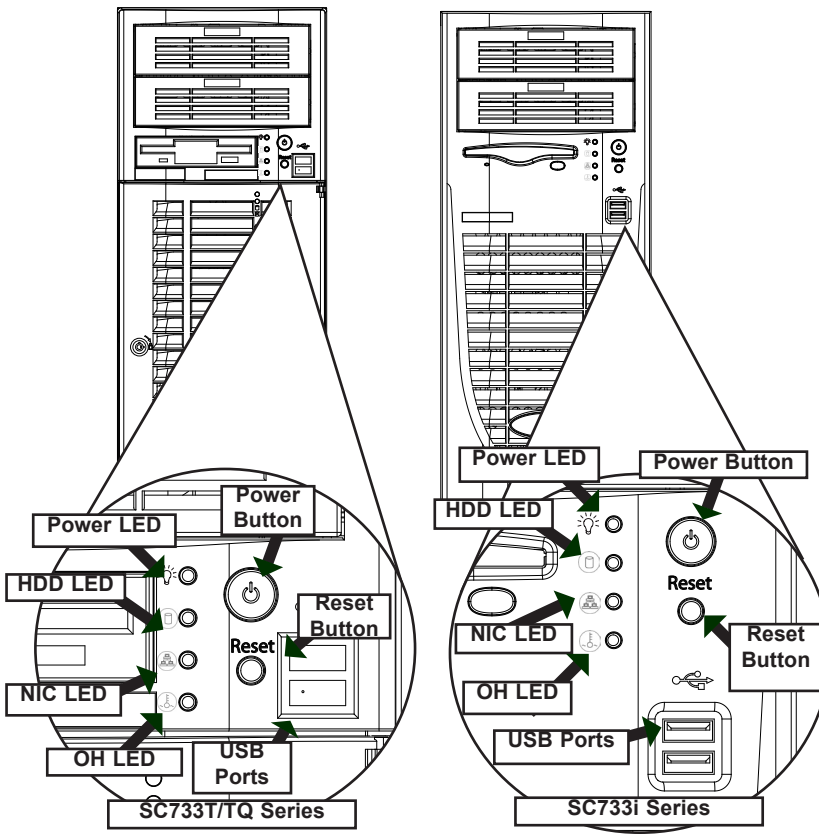
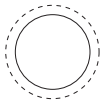


Figure 3-1: Front Chassis Panels

3-2 Control Panel Buttons

There are two push-buttons located on the front of the chassis. These are (in order from left to right) a reset button and a power on/off button.



- **Reset:** The reset button is used to reboot the system.

- **Power:** The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system. Therefore, you must unplug system before servicing.

3-3 Control Panel LEDs

The control panel located on the front of the SC733 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

- **Power:** Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

- **HDD:** Indicates IDE channel activity. SAS/SATA drive, SCSI drive, and/or DVD-ROM drive activity when flashing.

- **NIC1:** Indicates network activity on GLAN1 when flashing.

- **Overheat:** Indicates an overheating or fan failure condition when flashing.

Correcting an Overheat/Fan Fail Condition

1. Check the routing of the cables and move any cables the restrict airflow.
2. Confirm that all fans are operating normally.
3. Verify that the heatsinks are installed properly.
4. If the chassis cover is not aligned correctly, the airflow may be disrupted. This leads to overheating. Confirm that the chassis cover is placed correctly.
5. This LED will remain active as long as the overheat condition exists.

Notes

Chapter 4

Chassis Setup and Maintenance

4-1 Overview

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool you will need to install components and perform maintenance is a Phillips screwdriver. Print this chapter to use as a reference while setting up your chassis.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 2: System Safety and the warning/precautions listed in the setup instructions.

4-2 Removing the Chassis Cover

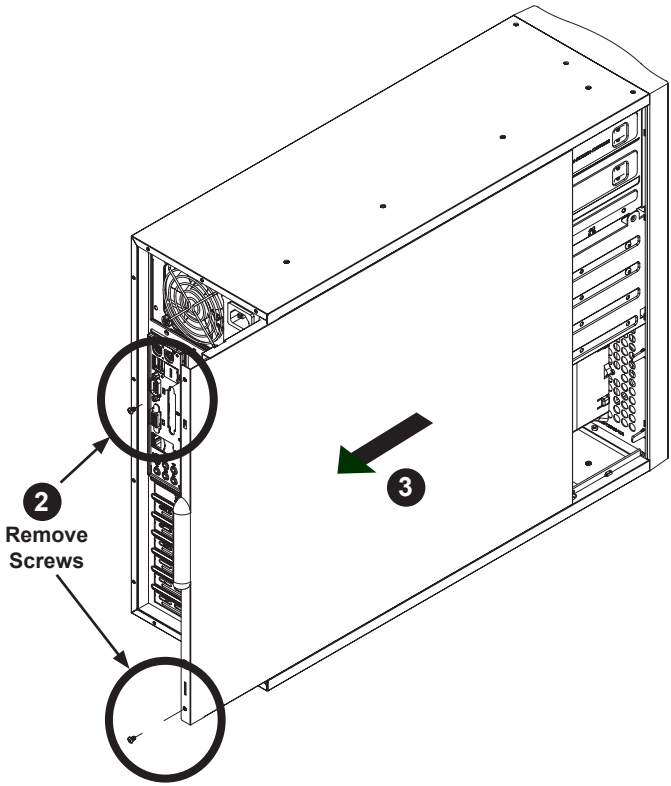


Figure 4-1: Removing the Chassis Cover

Removing the Chassis Cover:

1. Disconnect the chassis from any power source.
2. On the rear of the chassis, remove the two screws holding the cover in place.
3. Slide the cover back, toward the rear of the chassis
4. Lift the cover off the chassis.

Warning: Except for short periods of time, do NOT operate the server without the cover in place. The chassis cover must be in place to allow proper airflow and prevent overheating.

4-3 Installing Hard Drives in the SC733i Model Chassis

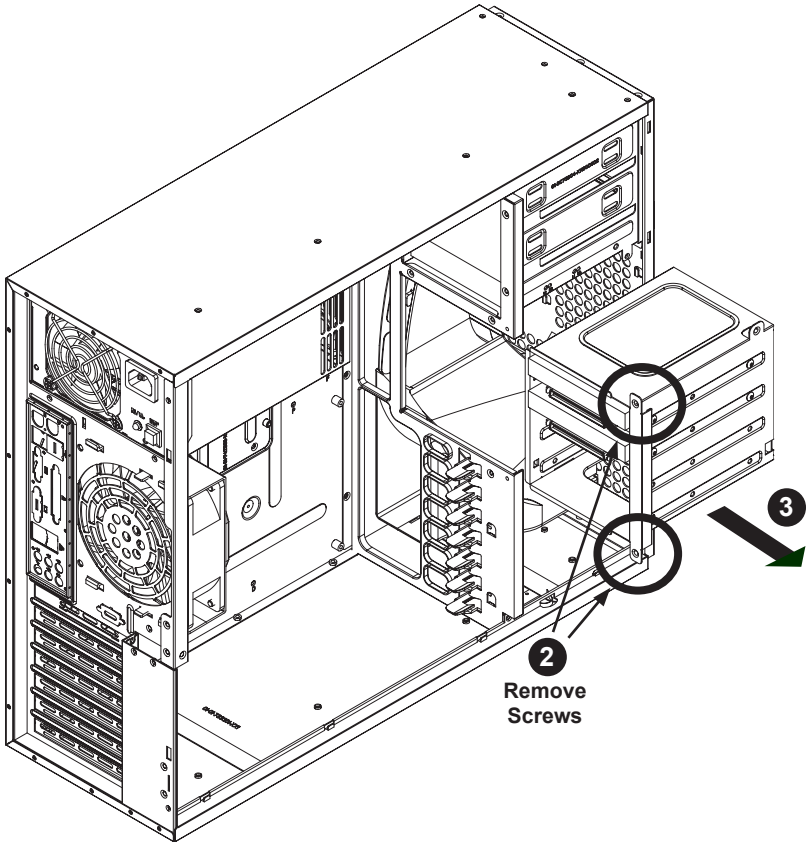


Figure 4-2: Removing the Hard Drive Module

The SC733i chassis must be powered-down before hard drives can be removed from the hard drive carriers.

Replacing Hard Drives in the SC733i Chassis

1. Disconnect the chassis from any power source.
2. Remove the two screws securing the hard drive module to the chassis.
3. Gently slide the hard drive module out of the chassis.

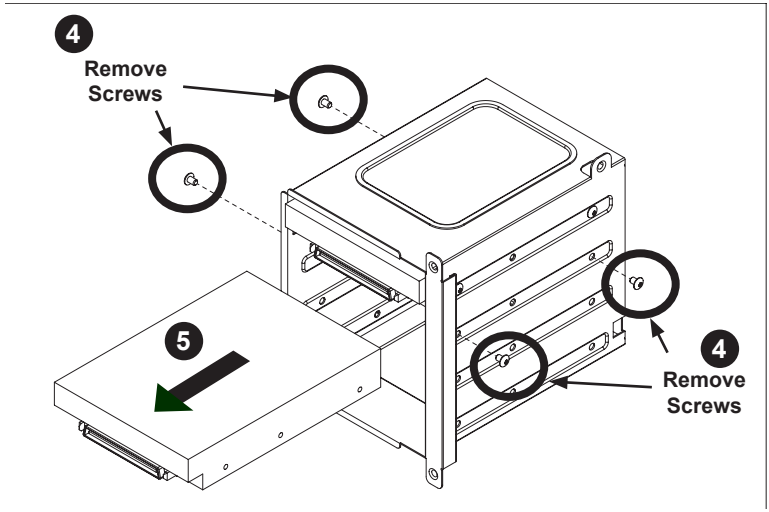


Figure 4-3: Removing Drives from the SC733i Hard Drive Module

4. Remove the 4 screws securing each of the hard drives.
5. Slide the drive (or dummy drive) out of the hard drive module.
6. Insert the replacement drive into the hard drive module.
7. Slide the hard drive module back into the chassis.
8. Connect the wiring to the back of the hard drive.

4-4 Installing Hard Drives in the SC733T and SC733TQ

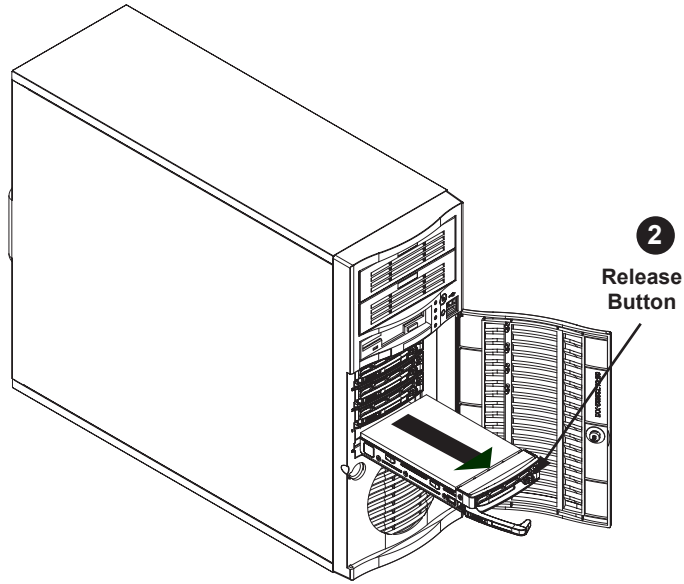


Figure 4-4: Removing the Hard Drive Carrier from the Chassis

The SC733T and SC733TQ models feature hot-swappable hard drives, which permit the exchange of hard drives, without powering down the system

Removing Hard Drive Carriers in the SC733T and SC733TQ Chassis

1. Unlock the front bezel panel of the chassis and swing the panel to the left to open it as shown above.

2. Press the release button on the front of the drive carrier. This will cause the drive carrier handle to pop outward.

3. Using the drive carrier handle, gently pull the drive carrier out of the chassis.

Warning! Enterprise level hard disk drives are recommended for use in Supermicro chassis and servers. For information on recommended HDDs, visit the Supermicro Web site at http://www.supermicro.com/products/nfo/files/storage/SAS-1-CompList-110909.pdf

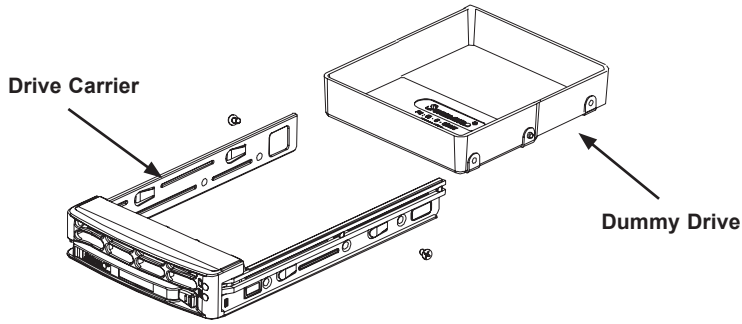


Figure 4-5: Chassis Drive Carrier

The drives are mounted in drive trays to simplify their installation and removal from the chassis. These trays also help promote proper airflow for the drive bays.

Warning: Except for short periods of time (swapping hard drives), do not operate the server with the chassis drive bays empty.

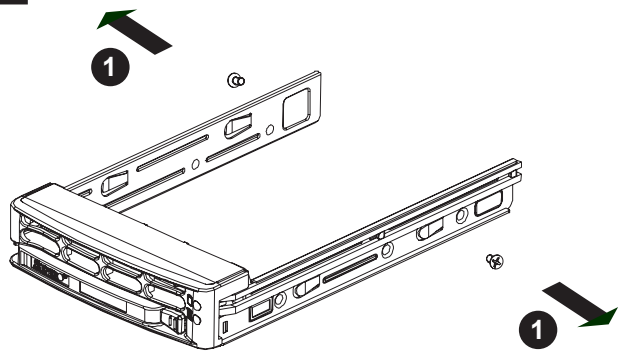


Figure 4-6: Removing Dummy Drive from the Drive Carrier

Installing the Hard Drive into the SC733T and SC733TQ Hard Drive Carriers

1. Remove the two screws securing the dummy drive to the drive carrier and remove the dummy drive. Place the hard drive carrier on a flat surface such as a desk, table or work bench.

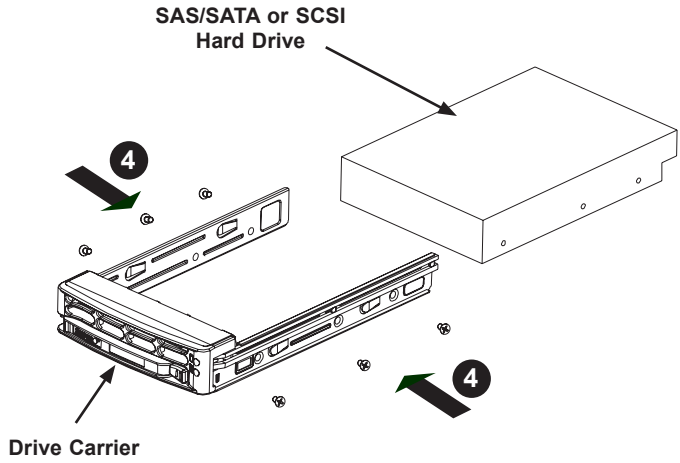


Figure 4-7: Removing Hard Drive

2. Slide the hard drive into the carrier with the printed circuit board side facing down.

3. Carefully align the mounting holes in both the drive carrier and the hard drive.

4. Secure the hard drive to the carrier using six screws.

5. Replace the drive carrier into the chassis. Make sure to close the drive carrier handle to lock the drive carrier into place.

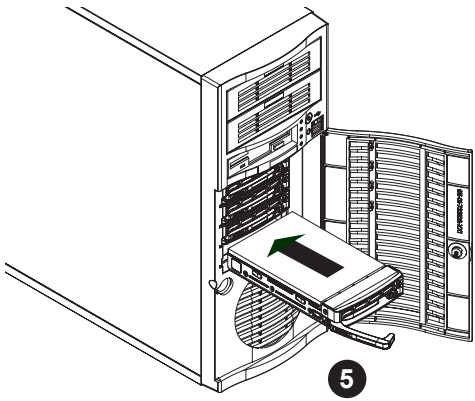


Figure 4-8: Replacing Hard Drive in the SC733T and SC733TQ Chassis

4-5 Installing a Peripheral Drive

SC733 chassis models have peripheral drive bays, in which an optional drive may be installed. This may be a CD-ROM, DVD-ROM or other device. In the unlikely event that it becomes necessary to replace a peripheral drive, use the following procedure.

Adding or Replacing a Peripheral Drive

1. Disconnect the chassis from any power source.
2. Remove the chassis cover.
3. Unplug the power and data cables from the motherboard and/or backplane.
4. **If you are adding a new peripheral drive:** Remove the mini-bezel (grate) from the drive bay The bezel can be removed by pulling out the hard drive beneath the drive bay, then pulling the mini-bezel forward.

   If you are replacing a peripheral drive: Locate the locking tab at the rear (left hand side when viewed from the front) of the drive. Push the tab toward the drive, and push the drive unit out the front of the chassis.
5. Push the new drive unit into the slot, until the tab locks into place.
6. Reconnect the data and power cables.
7. Replace the chassis cover, reconnect the power source and power up the system.

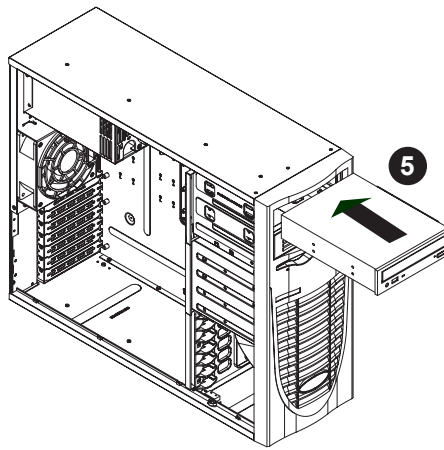


Figure 4-9: Installing the Peripheral Drive

4-6 Installing the Motherboard, I/O Shield and Standoffs

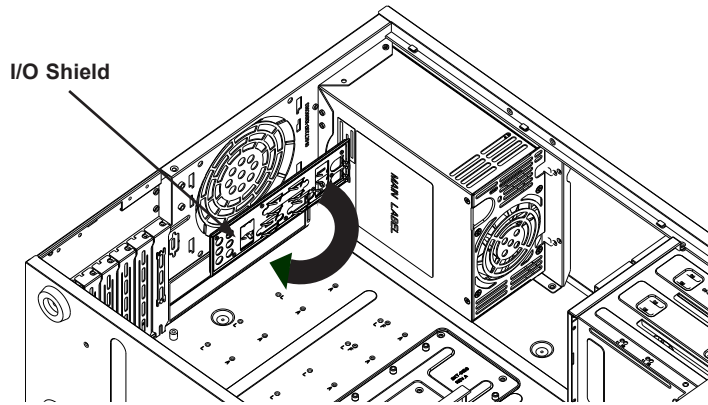


Figure 4-10: I/O Shield Placement

I/O Shield

An I/O shield holds the motherboard ports in place. Install the I/O shield before you install the motherboard. Motherboards are sold separately from the SC733 chassis and come with I/O shields specific to the motherboard.

Installing the I/O shield:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, and precautions.
2. Open the chassis cover.
3. With the illustrations facing the outside of the chassis, place the shield into the space provided.
4. Once installed, the motherboard will hold the I/O shield in place.

Permanent and Optional Standoffs

Standoffs prevent short circuits by securing space between the motherboard and the chassis surface. The SC733 chassis includes permanent standoffs in locations used by most motherboards. These standoffs accept the rounded Phillips head screws included in the SC733 accessories packaging.

Some motherboards require additional screws for heatsinks, general components and/or non-standard security. Optional standoffs are included to these motherboards. To use an optional standoff, you must place the hexagonal screw through the bottom the chassis and secure the screw with the hexagon nut (rounded side up). Note that motherboards are purchased separately from the chassis.Motherboard

Motherboard Installation

Installing the Motherboard:

1. Review the documentation that came with your motherboard. Become familiar with component placement, requirements, precautions, and cable connections.

2. Open the chassis cover.

3. As required by your motherboard, install standoffs in any areas that do not have a permanent standoff. To do this:
   A. Place a hexagonal standoff screw through the bottom the chassis.
   B. Secure the screw with the hexagon nut (rounded side up).

4. Lay the motherboard on the chassis aligning the permanent and optional standoffs

5. Secure the motherboard to the chassis using the rounded, Phillips head screws. Do not exceed nine pounds of torque when tightening the motherboard.

6. Secure the CPU(s), heatsinks, and other components to the motherboard as described in the motherboard documentation.

7. Connect the cables between the motherboard, backplane, chassis, front panel, and power supply, as needed. Also, the fans may be temporarily removed to allow access to the backplane ports.

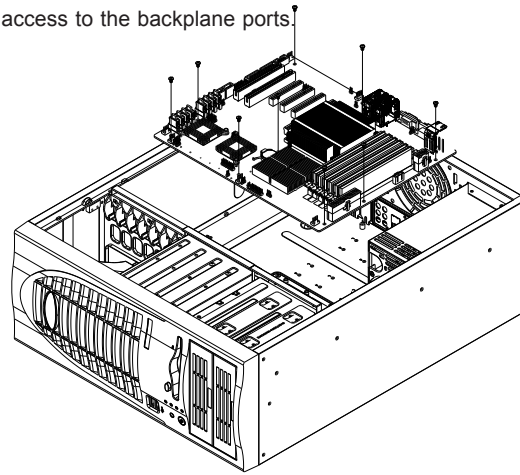


Figure 4-11: Installing the Motherboard

4-7 Installing Add-on and Expansion Cards

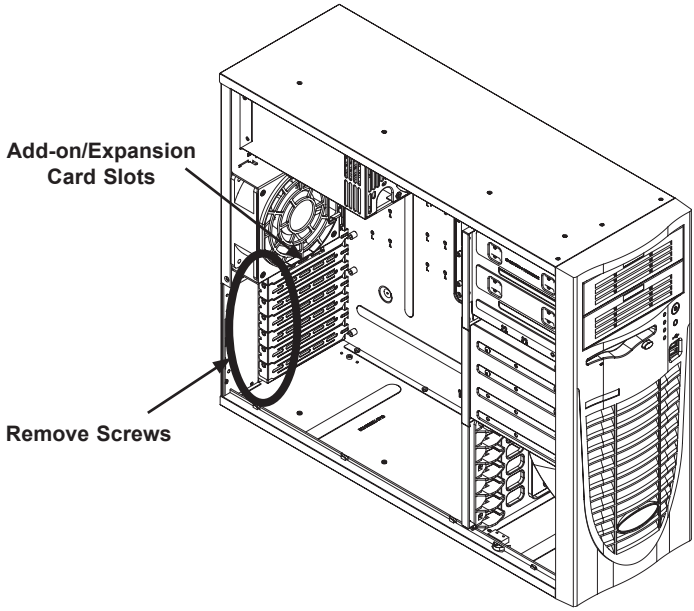


Figure 4-12: Installing Add-on or Expansion Cards

Add-on Card/Expansion Slot Setup

SC733 chassis include slots for add-on cards and expansion cards. The number of cards you can use depends on your chassis model and motherboard model.

Installing Add-on and Expansion Cards

1. Disconnect the power supply, set the chassis on a flat surface, and open the chassis cover.
2. Remove the screws holding the cover in place for each add-on/expansion card slot you want to use. Keep this screw for later use.
3. Connect the add-on cards and/or expansion cards to the mother board.
4. Secure each card to the chassis using the card's L-bracket and the screw previously removed.

4-8 Removing the Fan Duct and System Fan

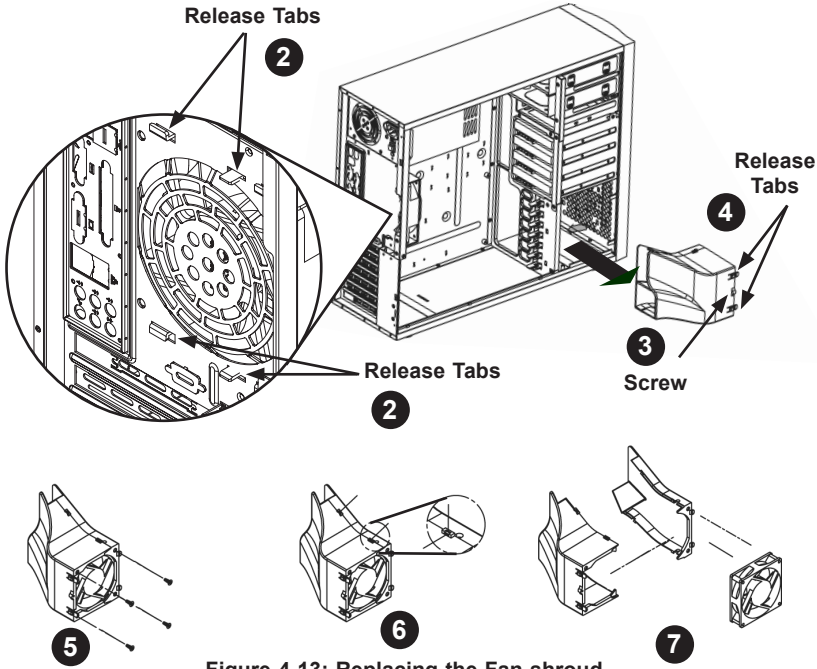


Figure 4-13: Replacing the Fan shroud

The fan duct concentrates airflow to maximize fan efficiency.

Removing the Fan Duct and System Fan

1. Disconnect the chassis from any power source.
2. Release the clips that secure the fan duct to the chassis. (Only the 645W and 665W versions have this type of fan).
3. Remove the screw securing the fan duct to the chassis.
4. Press down the release tabs on the fan duct as shown and pull the fan duct out from its location in the chassis.
5. Remove the four screws at the front of the fan duct that hold the fan in place. Then release the two fasteners along the side of the fan duct.
6. Separate the fan duct into two pieces remove the fan
7. Add a new fan of the same type.

4-9 Checking the Server's Air Flow

Checking the Server's Air flow

1. Make sure there are no objects to obstruct airflow in and out of the server. In addition, if you are using a front bezel, make sure the bezel's filter is replaced periodically.

2. Do not operate the server without drives or drive trays in the drive bays. Use only recommended server parts.

3. Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path or use shorter cables.

The control panel LEDs inform you of system status. See “Chapter 3: System Interface” for details on the LEDs and the control panel buttons.

In most cases, the chassis power supply and fans are pre-installed. If you need to install fans continue to the Systems Fan section of this chapter. If the chassis will be installed into a rack, continue to the next chapter for rack installation instructions.

4-10 Power Supply

Depending on your chassis model the SC733 Chassis has a 300, 350, 450, 465, 645 or 665 Watt power supply. This power supply is auto-switching capable. This enables it to automatically sense and operate at a 100v to 240v input voltage. An amber light will be illuminated on the power supply when the power is off. An illuminated green light indicates that the power supply is operating.

New units can be ordered directly from Supermicro (see the contact information in the Preface).

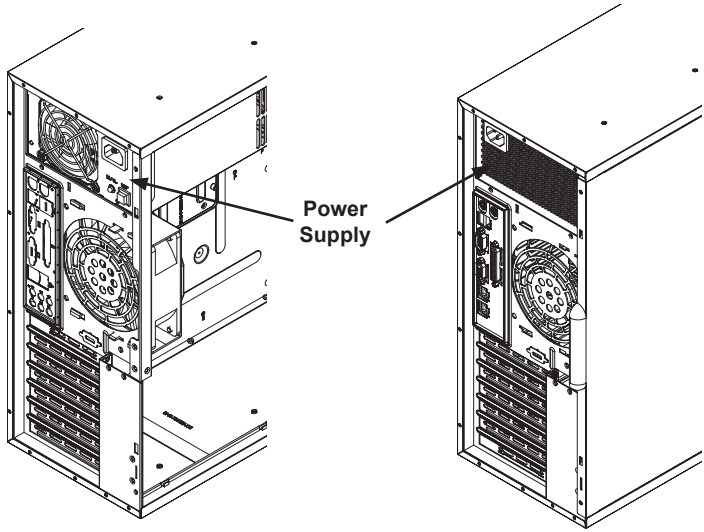


Figure 4-14: Removing the Power Supply

Changing the Power Supply

1. Disconnect the chassis from any power source.
2. Remove the screws securing the power supply to the chassis, which are located on the rear of the chassis.
3. Pull the power supply out of the chassis.
4. Change the failed power module with the same model.
5. Push the new power supply module into the power bay until you hear a click.
6. Plug the AC power cord back into the module and power up the server.

Chapter 5

Rack Installation

5-1 Overview

This chapter provides a quick setup checklist to get your chassis up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time.

5-2 Unpacking the System

You should inspect the box the chassis was shipped in and note if it was damaged in any way. If the chassis itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold your chassis. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it placed near a grounded power outlet. Be sure to read the Rack and Server Precautions in the next section.

5-3 Preparing for Setup

The box your chassis was shipped in should include two sets of rail assemblies, two rail mounting brackets and the mounting screws you will need to install the system into the rack. Please read this section in its entirety before you begin the installation procedure outlined in the sections that follow.

Choosing a Setup Location

- Leave enough clearance in front of the rack to enable you to open the front door completely (~25 inches).
- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and ease in servicing.

- This product is for installation only in a Restricted Access Location (dedicated equipment rooms, service closets and the like).

Warnings and Precautions!

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.
- In single rack installation, stabilizers should be attached to the rack.
- In multiple rack installations, the racks should be coupled together.
- Always make sure the rack is stable before extending a component from the rack.
- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

General Server Precautions

- Review the electrical and general safety precautions that came with the components you are adding to your chassis.
- Determine the placement of each component in the rack *before* you install the rails.
- Install the heaviest server components on the bottom of the rack first, and then work up.
- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the hot plug hard drives and power supply modules to cool before touching them.
- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

5-4 Rack Mounting Instructions

This section provides information on installing the SC733 chassis into a rack unit with the rails provided. There are a variety of rack units on the market, which may mean the assembly procedure will differ slightly. You should also refer to the installation instructions that came with the rack unit you are using.
NOTE: This rail will fit a rack between 26" and 33.5" deep.

Identifying the Sections of the Rack Rails

The chassis package includes two rack rail assemblies in the rack mounting kit. Each assembly consists of two sections: an inner fixed chassis rail that secures directly to the server chassis and an outer fixed rack rail that secures directly to the rack itself.

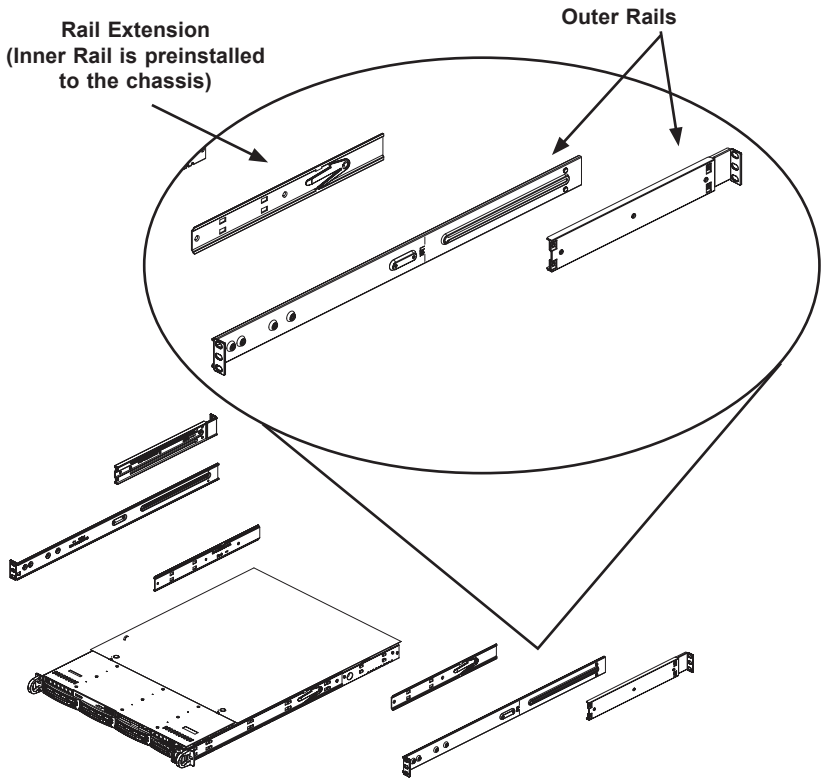


**Figure 5-1: Identifying the Sections of the Rack Rails
(right side rail shown)**

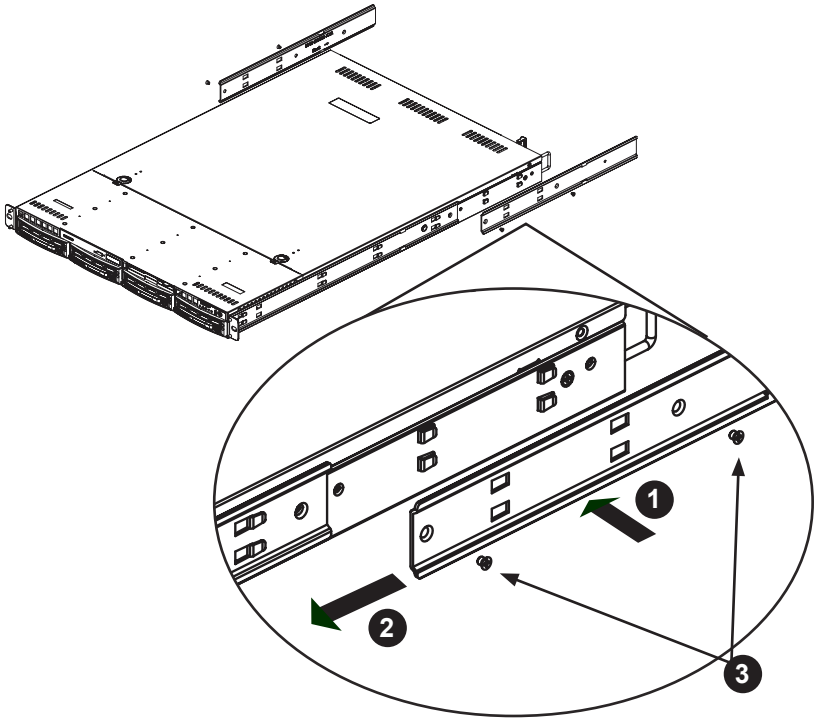


Figure 5-2: Identifying the Sections of the Rack Rails (right side rail shown)

Inner Rail Extension

The SC733 chassis includes a set of inner rails in two sections: inner rails and inner rail extensions. The inner rails are preattached and do not interfere with normal use

Installing the Inner Rails

1. Place the inner rack extensions on the side of the chassis aligning the hooks of the chassis with the rail extension holes. Make sure the extension faces "outward" just like the preattached inner rail.

2. Slide the extension toward the front of the chassis.

3. Secure the chassis with 2 screws as illustrated.

4. Repeat steps 1-3 for the other inner rail extension.

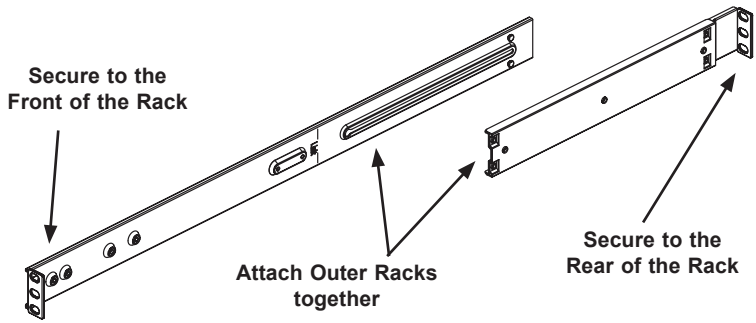


Figure 5-3: Assembling the Outer Rails

Installing the Outer Rails on the Rack

1. Attach the short bracket to the outside of the long bracket. You must align the pins with the slides. Also, both bracket ends must face the same direction.

2. Adjust both the short and long brackets to the proper distance so that the rail fits snugly into the rack.

3. Secure the long bracket to the front side of the outer rail with two M5 screws and the short bracket to the rear side of the outer rail with three M5 screws.

4. Repeat steps 1-4 for the left outer rail.

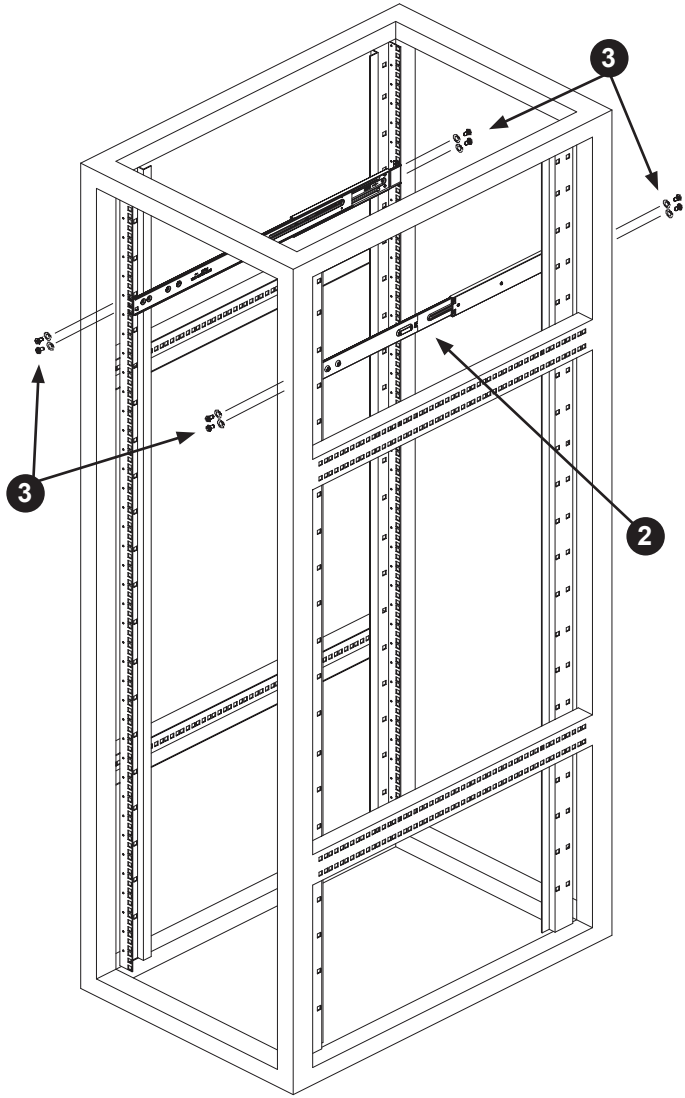


Figure 5-4: Installing the Outer Rails to the Server Rack

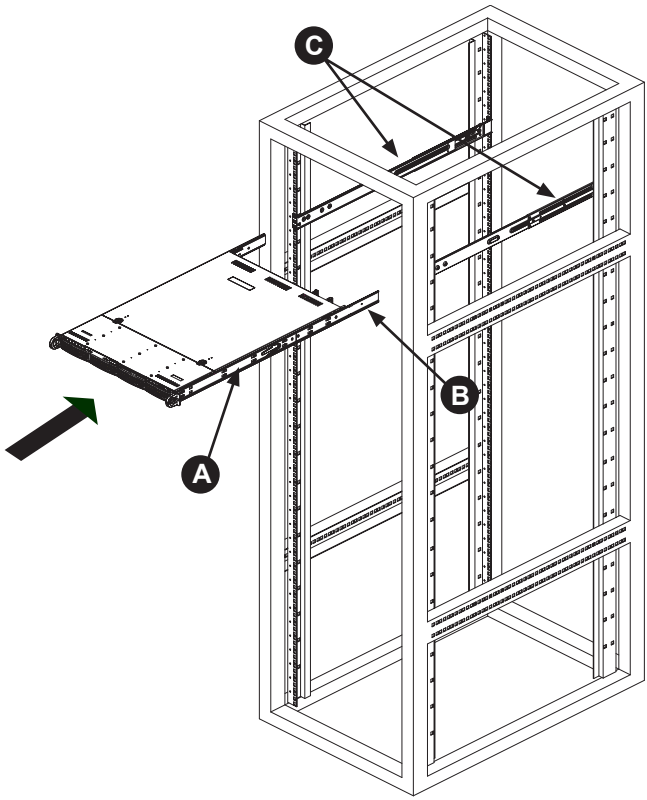


Figure 5-5: Installing the Rack Rails

To install the chassis into a rack:

1. Confirm that chassis includes the inner rails (A) and rail extensions (B). Also, confirm that the outer rails (C) are installed on the rack.

2. Line chassis rails (A and B) with the front of the rack rails (C).

3. Slide the chassis rails into the rack rails, keeping the pressure even on both sides (you may have to depress the locking tabs when inserting). When the server has been pushed completely into the rack, you should hear the locking tabs "click".

4. (Optional) Insert and tightening the thumbscrews that hold the front of the server to the rack.

Telco (Two Post) Racks

Telco racks utilize two posts instead of four. Because of this, telco racks require a different installation process.

The chassis is secured by one of three methods:
1. the outer rails attach directly to the rack
2. the outer rails separate into four sections and attach to the rack, or
3. special chassis brackets attach the chassis to the rack.

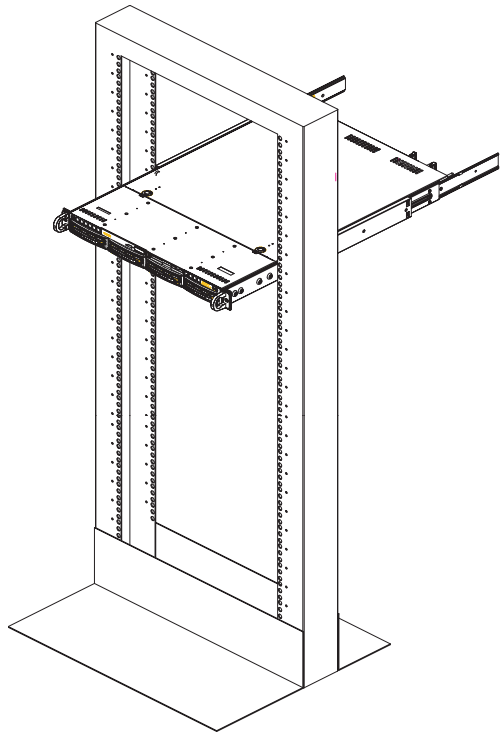


Figure 5-6: Installing the Server into a Telco Rack

Notes

Appendix A

Cables, Screws, and other Accessories

A-1 Overview

This appendix lists supported cables for your chassis system. It only includes the most commonly used components and configurations. For more compatible cables, refer to the manufacturer of the motherboard you are using and our Web site at: www.supermicro.com.

A-2 Cables Included with SC733 Chassis

SC733TQ-645(B), SC733i-645(B), SC733TQ-665(B)			
Part #	**Type**	**Length**	**Description**
CBL-0049	Cable	21"	Front panel cable, 16 pin to 16 pin
CBL-0084	Cable	6"	Split converter cable

SC733T-645(B), SC733TQ-465(B)			
Part #	**Type**	**Length**	**Description**
CBL-0049	Cable	21"	Front panel cable, 16 pin to 16 pin

SC733TQ-645(B), SC733TQ-465(B), SC733T-465(B), SC733i-465B, SC733T-450			
Part #	**Type**	**Length**	**Description**
CBL-0049L	Cable	21"	Front panel cable, 16 pin to 16 pin
CBL-0084	Cable	6"	Split converter cable

A-3 Compatible Cables

These cables are compatible with the SC733 Chassis.

Alternate SAS/SATA Cables

Some compatible motherboards have different connectors. If your motherboard has only one SAS connector that the SAS/SATA cables must share, use one of the following cables. These cables must be purchased separately.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0175L
Alt. Name: "Big Four"

Description: This cable has one SFF-8484 (32 pin) connector on one end and 4 SAS connectors (7 pins each) at the other. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Cable Name: SAS Cable **Quantity:** 1

Part #: CBL-0116
Alt. Name: iPass or "Small Four"

Description: This cable has one ipass (SFF-8087/mini-sas) connector (36 pins) at one end and 4 SAS connectors on one end. This cable connects from the Host (motherboard or other controller) to the backplane SAS hard drive port.

Extending Power Cables

Although Supermicro chassis are designed with to be efficient and cost-effective, some compatible motherboards have power connectors located in different areas.

To use these motherboards you may have to extend the power cables to the mother boards. To do this, use the following chart as a guide.

Power Cable Extenders		
Number of Pins	**Cable Part #**	**Length**
24 pin	CBL - 0042	7.9"(20 CM)
20 pin	CBL - 0059	7.9"(20 CM)
8 pin	CBL - 0062	7.9"(20 CM)
4 pin	CBL - 0060	7.9"(20 CM)

Front Panel to the Motherboard

The SC733 chassis includes a cable to connect the chassis front panel to the motherboard. If your motherboard uses a different connector, use the following list to find a compatible cable.

Front Panel to Motherboard Cable (Ribbon Cable)		
Number of Pins (Front Panel)	**Number of Pins (Motherboard)**	**Cable Part #**
16 pin	16 pin	CBL - 0049
16 pin	20 pin	CBL - 0048
20 pin	20 pin	CBL - 0047
16 pin	various*	CBL - 0068
20 pin	various*	CBL - 0067

* Split cables: Use these cable if your motherboard requires several different connections from the front panel.

A-4 Chassis Screws

The accessory box includes all the screws needed to set up your chassis. This section lists and describes the most common screws used. Your chassis may not require all the parts listed.

M/B

Pan head
6-32 x 5 mm
[0.197]

HARD DRIVE

Flat head
6-32 x 5 mm
[0.197]

DVD-ROM, CD-ROM, and FLOPPY DRIVE

Pan head
6-32 x 5 mm
[0.197]

Flat head
6-32 x 5 mm
[0.197]

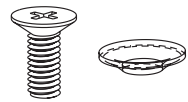
Round head
M3 x 5 mm
[0.197]

Round head
M2.6 x 5 mm
[0.197]

RAIL

Flat head
M4 x 4 mm
[0.157]

Round head
M4 x 4 mm
[0.157]

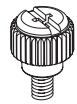


Flat head
M5 x 12 mm[0.472]
Washer for M5

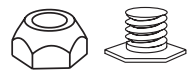
M/B STANDOFFS

M/B standoff
6-32 to 6-32

M/B (CPU)
standoff
M5 to 6-32



Thumb screw
6-32 x 5 mm
[0.197]



1/U M/B standoff
6-32 x 5 mm
[0.197]

Appendix B

SC733 Power Supply Specifications

This appendix lists power supply specifications for your chassis system.

SC733						
	665W	**645W**	**465W**	**450W**	**350W**	**300W**
MFR Part #	PWS-665 -PQ	PWS-0060	PWS-465 -PQ	PWS-450(B)	PWS-0059	PWS-0041
Rated AC Voltage	100 - 240V, 50 - 60HZ, 10 - 5 Amp	100 - 240V 50 - 60Hz 11 -5 Amp	100 - 240V 50 - 60Hz 6 - 3 Amp	100 - 240V 50 - 60Hz 10 Amp	100 - 240V 50 - 60Hz 8 Amp	100 - 240V, 50 - 60Hz, 10-5 Amp
DC Output	N/A	5V +3.3V ≤ 160W	N/A	5V + 3.3V ≤ 160W 12V + 5V + 3.3V ≤ 430W	5V + 3.3V ≤ 166W 12V + 5V + 3.3V ≤ 334W	5V + 3.3V ≤ 180W • 12V + 5V + 3.3V ≤ 300W
+5V standby	6 Amp	4 Amp	3 Amp	2 Amp	2 Amp	2 Amp
+12V	54 Amp	46 Amp	35 Amp	30 Amp	24 Amp	15 Amp
+5V	30 Amp	30 Amp	20 Amp	26 Amp	2 Amp	30 Amp
+3.3V	24 Amp	30 Amp	15 Amp	30 Amp	25 Amp	28 Amp
-12V	0.5 Amp	0.6 Amp	0.5 Amp	1 Amp	0.5 Amp	0.8 Amp

Notes

Appendix C

SAS-733TQ Backplane Specifications

Safety Information and Technical Specifications

C-1 Safety Guidelines

To avoid personal injury and property damage, please carefully follow all the safety steps listed below when accessing your system or handling the components:

ESD Safety Guidelines

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to your system, it is important to handle it very carefully. The following measures are generally sufficient to protect your equipment from ESD.

- Use a grounded wrist strap designed to prevent static discharge.
- Touch a grounded metal object before removing a component from the antistatic bag.
- Handle the backplane by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the card and peripherals back into their antistatic bags when not in use.

General Safety Guidelines

- Always disconnect power cables before installing or removing any components from the computer, including the SAS-733TQ backplane.
- Disconnect the power cable before installing or removing any cable from the SAS-733TQ backplane.
- Make sure that the SAS-733TQ backplane is securely and properly installed on the motherboard to prevent damage to the system due to power shortage.

C-2 An Important Note to the User

All images and layouts shown in this user's guide are based upon the latest PCB Revision available at the time of publishing. The card you've received may or may not look exactly the same as the graphics shown in this manual.

C-3 Introduction to the SAS-733TQ Backplane

The SAS-733TQ backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SAS-733TQ Revision 3.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

Overview

The SAS-733TQ backplane is a highly efficient, highly compatible and easy to use SES-2 backplane that offers the most advanced functionality provided by the Serial Attached/Serial Link Industry in a slim package. With the built-in AMI MG 9071 chip, the SAS733TQ Backplane allows the user to configure RAID 0, RAID 1 and RAID 5, maximizing data storage capability and data transferring reliability. Additionally, the SAS733TQ supports SATA up to 3Gbps and SAS up to 3Gbps with *SES-2 (SCSI Enclosure Services-2) capabilities, providing complete Serial Attached Services and Serial Link Solutions to the market. (*Refer to the section below.)

Backplane Features

The SAS-733TQ Backplane supports the following features when it is installed on a motherboard that has an onboard SAS controller:

1. Compatible with SATA drives
2. Supporting SAS drives with a transfer rate of 3Gbps
3. Supporting I^2C Interface to communicate with SAS/SATA Host Bus Adaptors (HBA)
4. Minimizing the need for cables and connectors, uncluttering server space, and providing a trouble-free installation environment for the user

5. Supporting SES-2 (SCSI Enclosure Services-2) protocol, providing the following features:

- Drive activity and drive failure indication for each drive slot
- Overheat/drive failure alarm via a buzzer* installed on the backplane
- An overheat/drive failure LED Indicator built in
- Temperature monitoring via a 2 wire (I^2C) temperature sensor in the MG 9071 chip

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

- Hard drive failure
- Fan failure
- System temperature over 45º Celsius.

C-4 Jumper Settings and Pin Definitions

Front Jumper/Connector Locations

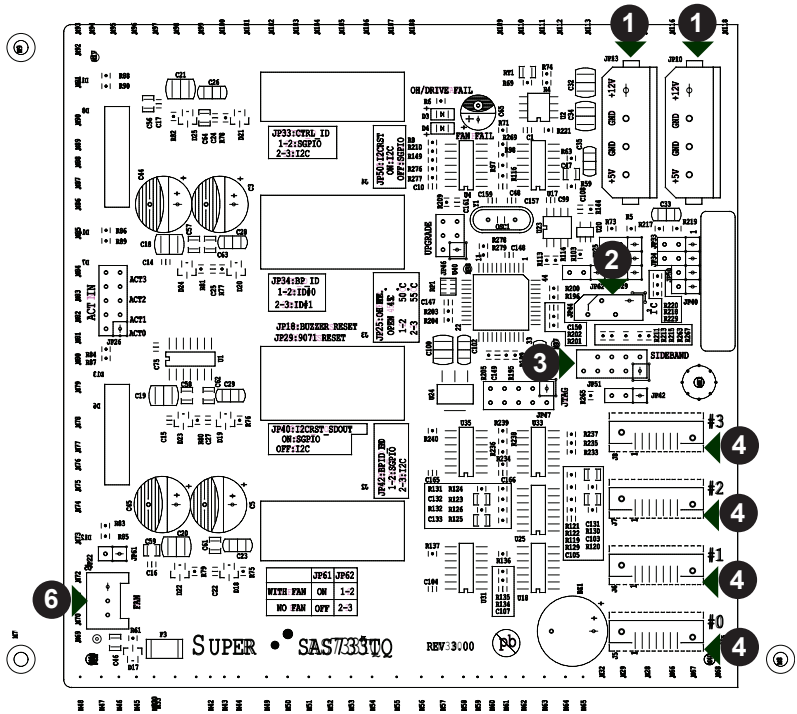


Figure C-1: SAS-733TQ Front View

Front Connectors

1. JP10/JP13: Backplane main power connectors
2. JP44: I^2C connector
3. JP51: Sideband header
4. SAS 0-3 Connectors: SAS#0 (J5), SAS#1 (J6), SAS#2 (J7), SAS#3 (J8),
5. JP26: Activity LED header
6. JP22: Fan header

C-5 Front Connector Pin Definitions

1. Backplane Main Power Connectors (JP10, JP13) Pin Definitions

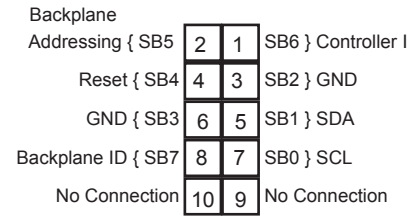
You must use the 4-pin power connectors: JP10 and JP13 to provide adequate power to the backplane. See the table on the right for pin definitions.

Backplane Main Power
4-Pin Connector (JP10)

Pin #	Definition
1	+12V
2 and 3	Gound
4	+5V

2. Sideband Header - JP51

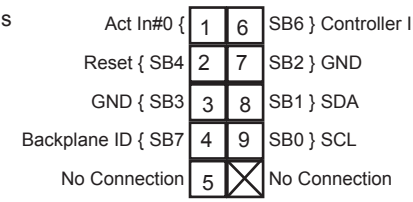
The sideband header is designated JP51. For SAS-II to work properly, connect an 8-pin sideband cable to JP51 as shown on the right. .



Sideband Pin Definitions (JP51)

3. Activity LED Header - JP26 Pin Definitions

The Activity LED header JP26 transmits signals to indicate the activity status of each SAS slot. For the Activity LED header to work properly, connect a 4-pin LED cable to Pin 1 to Pin 4 of JP26 as shown on the right. See the table on page C-6 for pin definitions.



Note 1: "NC" = No connection
Note 2: Connect a 4-pin LED cable to Pin1 - Pin4 of JP26 only.

SAS Activity LED (JP26)

4. 3-pin Fan Header - JP22 Pin Definitions

- The 3-pin fan header is designated JP22. To prevent overheating, connect a 3-pin fan cable to JP22. See the table for pin definitions.
  Note:
  The fan header uses DC power.
  Default: Fan disabled.

Pin Number	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer

Caution: Fan headers are DC Powered

Fan Header Pin Definitions

5. Front Overheat/Drive Failure LED Indicators - D3/D4

Front LED	State	Specification
D3	On	Overheat, drive failure or fan failure
D4	On	Fan failure only

6. Front Panel Jumper Settings and Pin Definitions

Jumper	Description	Definition
JP18	Open (Default)	Normal
	Closed	Buzzer reset
JP26	Open (Default)	Act #0 - 3 In
JP29	Open (Default)	Normal
	Closed	MG9071 reset
JP33	1-2	I^2C controller ID: SGPIO
	2-3 (Default)	I^2C controller ID I^2C
JP34	1-2 (Default)	I^2C backplane ID: ID#0
	2-3	I^2C backplane ID: ID#1
JP40	Closed	I^2C reset: SGPIO
	Open (Default)	I^2C reset I^2C
JP42	1-2	I^2C backplane ID: SGPIO
	2-3 (Default)	I^2C backplane ID: I^2C
JP50	Open	I^2C reset SGPIO
	Short (Default)	I^2C reset I^2C (On)

7. Fan Enable/Disable

Fan	JP61	JP62
Fan Enabled	On	Pins 1-2
Fan Disabled	Off	Pins 2-3

C-6 Rear Connectors and LED Indicators

Rear connector and LED locations

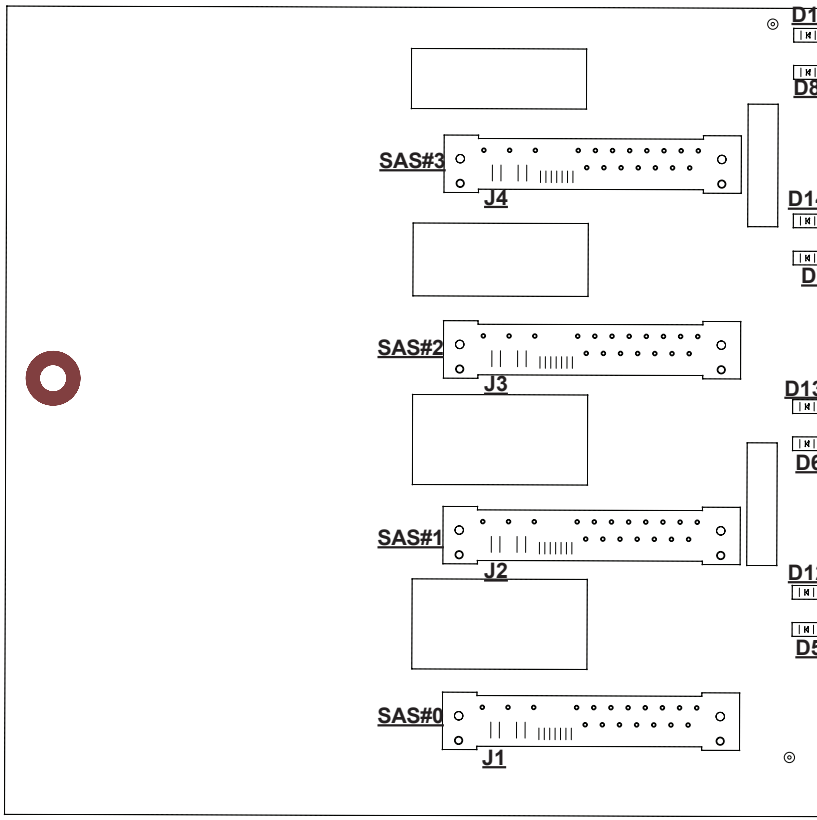


Figure C-2 - Rear View

Rear Connectors

Rear Connector	Specification
J1 (Rear)	SAS#0 HDD (Connected to HDD)
J2 (Rear)	SAS#1 HDD (Connected to HDD)
J3 (Rear)	SAS#2 HDD (Connected to HDD)
J4 (Rear)	SAS#3 HDD (Connected to HDD)

Rear Connectors and LED Indicators

Rear LED Indicators	Specification
D12 (Rear)	SAS#0 Activity LED
D13 (Rear)	SAS#1 Activity LED
D14 (Rear)	SAS#2 Activity LED
D15 (Rear)	SAS#3 Activity LED
D5 (Rear)	SAS#0 Fail LED
D6 (Rear)	SAS#1 Fail LED
D7 (Rear)	SAS#2 Fail LED
D8 (Rear)	SAS#3 Fail LED

Appendix D

SATA-733 Backplane Specifications

A-1 Overview

Important! Use extreme caution when working around the Serial ATA (SATA) backplane. Do not touch the backplane with any metal objects and make sure that no ribbon cables touch the backplane or obstruct the airflow holes in the SATA backplane. All SATA drive carriers must remain in the drive bays to promoste proper airflow.

The SATA backplane supports four SATA drives. The SATA drive's LED connector on the SATA backplane is JP26. There are also two power connectors on the backplane, and both connectors should be connected. Do not cascade the SATA backplane. Refer to the following table for jumper settings.

Introduction to the SATA-733 Backplane

The SATA-733 backplane has been designed to utilize the most up-to-date technology available, providing your system with reliable, high-quality performance.

This manual reflects SATA-733 Revision 3.00, the most current release available at the time of publication. Always refer to the Supermicro Web site at www.supermicro.com for the latest updates, compatible parts and supported configurations.

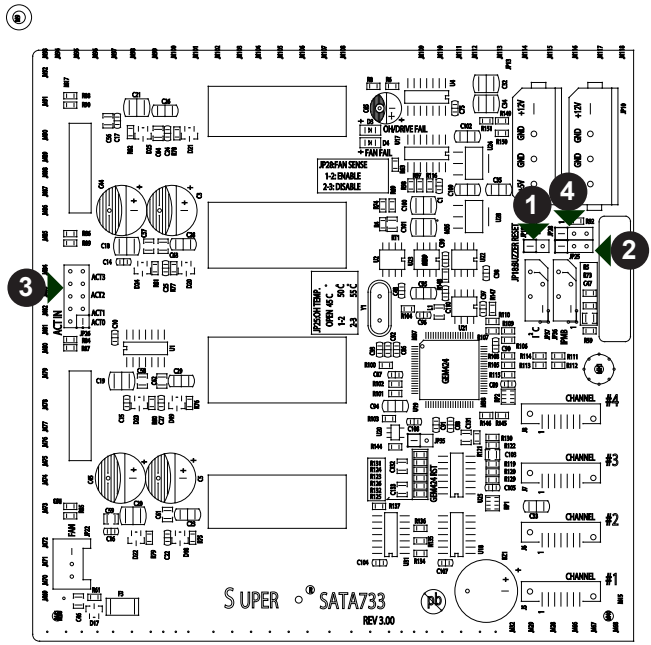


Figure D-1: SATA-733 Backplane

No.	Jumper	Description	Setting
1	JP18	Buzzer Reset*	Alarm Reset Header
2	JP25	Overheat Temperature	Open: 45ºC Pins 1-2: 50º C (Default) Pins 2-3: 55º C
3	JP26	SATA Drive Activity	Drive Activity
4	JP28	Fan Sense	Pins 1-2: Enable Pins 2-3: Diable (Default)

*The buzzer sound indicates that a condition requiring immediate attention has occurred.

The buzzer alarm is triggered by the following conditions:

1. Hard drive failure
2. Fan failure
3. System temperature over 45º Celsius.

Notes

Disclaimer (cont.)

The products sold by Supermicro are not intended for and will not be used in life support systems, medical equipment, nuclear facilities or systems, aircraft, aircraft devices, aircraft/emergency communication devices or other critical systems whose failure to perform be reasonably expected to result in significant injury or loss of life or catastrophic property damage. Accordingly, Supermicro disclaims any and all liability, and should buyer use or sell such products for use in such ultra-hazardous applications, it does so entirely at its own risk. Furthermore, buyer agrees to fully indemnify, defend and hold Supermicro harmless for and against any and all claims, demands, actions, litigation, and proceedings of any kind arising out of or related to such ultra-hazardous use or sale.